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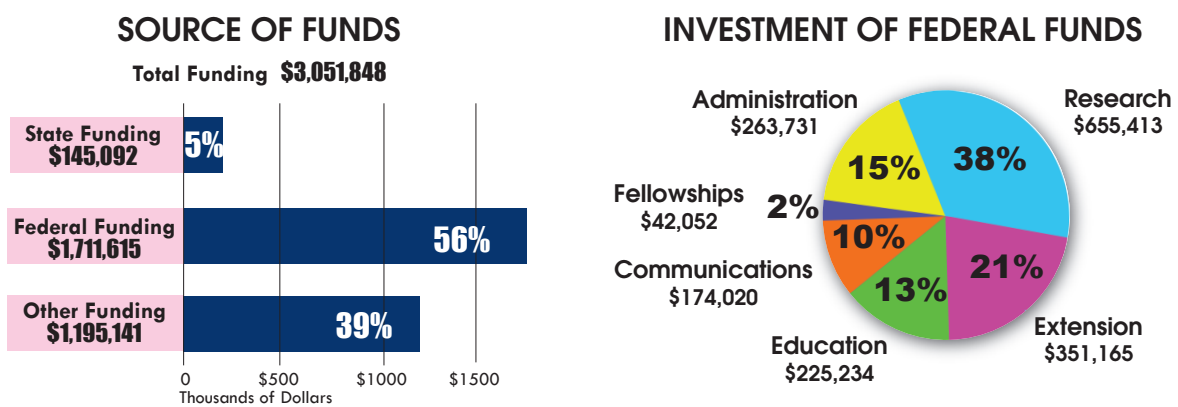
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For complete financials, visit <http://njseagrant.org/annual-report-2018>

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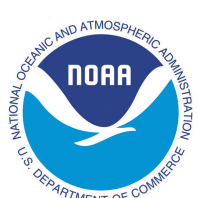
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New Jersey  
Sea Grant Consortium

# Annual Report

2018





## Chairman's Message

The Lady of the Lake

In medieval legend, the Lady of the Lake is the beautiful enchantress who rises from the waters to save her nation. In despair and at the brink of death, King Arthur throws his regal sword in the lake. A woman's hand emerges to catch it, bestows it with power and authority, and returns it to the King. He rules wisely and refreshed. Her task finished, the Lady of the Lake submerges.

The New Jersey Sea Grant Consortium has its own 'Lady of the Lake' in President Claire Antonucci. After decades of service, Claire recently announced her retirement to return to her own serene waters.

Claire emerged from NJSJC in 2008 to lead us. These were turbulent and uneasy times in our kingdom by the sea. Our rudder was broken, yet our boat was filled with able-bodied seamen. We were adrift.

For years before 2008, Claire had been the renowned and successful NJSJC Director of Education. In that role, we had a special niche like no other Sea Grant program. Yearly, Claire ushered 25,000 elementary children through our doors. Somewhere in those numbers is the scientist who will tackle the biggest issues facing our maritime future.

The Board of Trustees knew we had a leader already among us. I approached Claire and offered her the position of Executive Director. She politely declined. I not-so-politely 'suggested' she accept. She (again) politely told me the Board had lost its senses. Again, she declined. Only when I asked Claire to put the needs of NJSJC above her own, did she relent and take the job.

In the 11 years hence, Claire accomplished the impossible, including making me look like a genius. Not days after Claire became Executive Director, the global economy tanked. NJSJC lost critical State funding. Had Claire been less the dignified woman than she is, she surely would have had some choice words for me for dragging her into such a thankless role. Instead, like a determined sand crab, Claire dug in.

When many called for us to turn out the lights, Claire burned the midnight oil to problem-solve. She energized our brilliant (and underpaid) staff. She renewed our relationship with the national Sea Grant Office. Claire spun sea kelp into gold. Today, we thrive.

When Claire recently called me to announce her resignation, I brushed it off. "No, this time, I mean it," she said flatly. When the enormity of Claire's resolve hit, I realized it was time for Claire's sacrifices to be acknowledged with our blessing and thanks. This time, I relented. No words can thank Claire. Fortunately, none are needed. Look at the pages in this annual report. Look at our outreach, research and education efforts. When you see that, you see Claire.

And that's just the way she'd want it.

Oh, a few weeks ago, I called Claire to tell her the Board needs the Lady of the Lake to hang around awhile longer. "Fine," she told me. Fine, indeed.

Godspeed, Claire.

## Executive Director's Message



**CLAIRE ANTONUCCI**  
Executive Director

For the past 11 years, it has been my pleasure as Executive Director to present you with New Jersey Sea Grant Consortium's annual report wherein I try to express how proud I am to be just a small part of all that was achieved through the hard work and dedication of the Consortium's staff, board members, partners, stakeholders, and friends. Quite honestly, despite a decade of attempts, I do not think I have ever done justice to the contribution the Consortium and its people make towards the betterment of New Jersey's environment by connecting, questioning, collaborating, and doing their best to preserve and sustain our state's marine and coastal resources. The body of work is truly amazing. Probably best to let the results speak for themselves.

This year's message is especially poignant for me. After 25 years at the Consortium, I've decided to move on. Rest assured, I know how privileged I am to have spent these years at a place where the dynamic nature of marine and coastal research, education, and outreach intersect each day to realize a mission, upheld by an amazing group of people, that is as important now as it was then. Thank you for your support and your interest in the work of the NJSJC. I hope you enjoy this annual report.

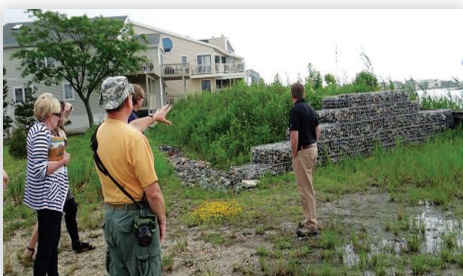


**DENNIS KEARNEY**  
Chairman  
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## Extension

### COMMUNITY RESILIENCE

Coastal Community Resilience Specialist, Dr. Thomas Herrington continued work to improve understanding of present and future climate change impacts. To increase local community resilience planning awareness, he conducted a public study of the increased frequency of coastal nuisance flooding due to sea level rise.



### SHELLFISH AQUACULTURE

According to Shellfish Aquaculture Program Coordinator Lisa Calvo, New Jersey shellfish growers may soon be diversifying their farms with the addition of Atlantic surfclams following Sea Grant-supported research to identify optimal conditions for culturing the species in the hatchery and field. On-farm trials yielded harvestable shell stock at just over one year and market research indicated strong interest in the novel product.



### MARINE RECREATION & TOURISM

Marine Recreation Extension Agent Michael Danko used his experience in recreational fishing and boating to help lead and develop the 2018-2028 NOAA/Sea Grant Coastal Tourism Visioning Plan with focus on Business and Community Tourism Management, Workforce Training, Economic Analysis, and Environmental Stewardship. The group will implement action items at the state level and plans to move forward on a national level.



### STORMWATER MANAGEMENT

Water Resources Agent Michelle Hartmann worked with the Red Bank Public Library to redesign and restore a rain garden with community members and Rutgers Cooperative Extension affiliates in August as part of the Navesink River Initiative. The garden includes 50 native plants, riverstone around downspouts, and mulch. Funded by NJSJC, it will capture approximately 27,000 gallons of stormwater per year and provide a beautiful natural space for visitors to enjoy.

### RIP CURRENT AWARENESS

Dr. Amy Williams presented her "Ocean Hazards: Sharks vs. Rip Currents" game at numerous schools, libraries, and festivals throughout Ocean, Monmouth, and Mercer Counties. Events included NJSJC's Ocean Fun Days, the Philadelphia Science Festival, Egg Harbor Township's "National Night Out," and Long Beach Island's new Marine Education Field Station. This year she also forged a partnership with Donald Walsh, author of the popular children's book "Teach the Beach," who joined her during student presentations.



### LIVING SHORELINES

Berkeley Island County Park reopened to the public in May after being closed since Superstorm Sandy. Part of the \$8 million renovation included construction of a living shoreline project, one of the largest in the state, designed using guidelines developed by Coastal Processes Specialist Dr. Jon Miller and Coastal Ecosystems Extension Agent Dr. Amy Williams. The project protects nearly 900 feet of shoreline and restored nearly one acre of critical habitat.

## Communications



Ocean City remained undefeated as New Jersey's overall "Favorite Beach" in NJSJC's popular annual poll, which drew several thousand voters. An awards ceremony was held on the Ocean City boardwalk in June.



NJSJC outreach continues growing with over 5,000

"COASTodian" subscribers. This quarterly online newsletter provides information on NJSJC's funded research, education and outreach activities. As interactive content continues boosting social media presence, updates were shared with more than 1,730 Facebook followers, 2,050 Twitter followers, and 380 on Instagram.



### OMNIBUS RESEARCH 2018-2020

**Impacts of thin layer sediment deposition on salt marsh ecosystems**

Dr. Kenneth W. Able, Rutgers, The State University of New Jersey

**River plumes as a control on microplastic entry into the food chain**

Dr. Nicole Fahrenfeld, Rutgers, The State University of New Jersey

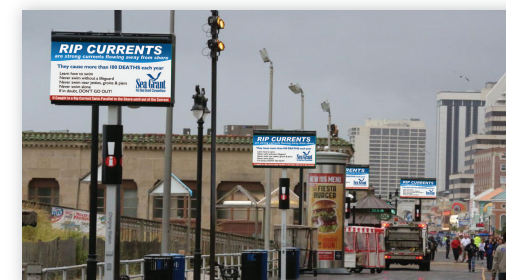
**Optimizing fishing regulations for New Jersey's multi-species recreational bottom fishery to improve economic outcomes and angler satisfaction**

Dr. Olaf P. Jensen, Rutgers, The State University of New Jersey

The 16th annual State of the Shore media event was held in Asbury Park in May. NJSJC's Coastal Processes Specialist Dr.



Jon Miller and new NJDEP Commissioner Catherine McCabe gave reports on the condition of New Jersey's beaches along with coastline forecasts for the summer season.



NJSJC's rip current safety message was featured on multiple electronic displays along the Atlantic City Boardwalk.

## Research Awards

**Measuring dune, beach, and nearshore response to an extreme event: Atlantic City, New Jersey**

Ms. Kimberly McKenna, Stockton University

**Interactions among horseshoe crabs and intertidal oyster farms in the Delaware Estuary**

Dr. Daphne Munroe, Rutgers, The State University of New Jersey

**Quantifying the effects of a changing climate on summer flounder recruitment**

Dr. Malin Pinsky, Rutgers, The State University of New Jersey

**"Green" retrofit of stormwater BMPs for pollution prevention in urban coastal communities of New Jersey**

Dr. Dibyendu Sarkar, Stevens Institute of Technology

**NATIONAL STRATEGIC INVESTMENTS AND SPECIAL AWARDS**

**Establishing Shellfish Hatchery Biosecurity Certification Standards to Facilitate Interstate Transport of Shellfish Seed**

Dr. David Bushek, Rutgers, The State University of New Jersey

**Enhancing Bivalve Aquaculture through Species Improvement and Diversification**

Dr. Ximing Guo, Rutgers, The State University of New Jersey

**Diversifying Shellfish Aquaculture in New Jersey, Technology Transfer for Development of a Surfclam Aquaculture Industry**

Dr. Daphne Munroe, Ms. Lisa Calvo, Rutgers, The State University of New Jersey

## Education



NJSJC's educators teamed up with Jenkinson's Aquarium to offer programs on underwater exploration. During these STEM-rich sessions, teams of students

designed and built remotely operated vehicles to deploy in the Aquarium's exhibit tanks.



To promote and improve climate literacy, NJSJC education staff applied research-based communications methods to train over 200 formal and informal educators on leading discussions on climate change and its impacts that are focused on solutions.



As always, participation in NJSJC's K-12 programs remained strong. Over 18,000 students joined NJSJC educators for field, classroom, and off-site programs. In addition, over 2000 boy and girl scouts participated in NJSJC's collection of merit badge programs designed around marine, coastal and environmental themes.

Along with founding partner New Jersey Natural Gas, NJSJC's education staff hosted its 15th annual Ocean Fun Days at Sandy Hook and Island Beach State Park. Over the years, this "family



friendly" weekend has engaged over 100,000 visitors in coastal education and stewardship.



In partnership with the Central Jersey Chapter of the National Association of Negro Business and Professional Women's Clubs, NJSJC educators embarked on a year-long effort to provide marine and coastal STEM experiences to students from minority groups traditionally under-represented in the sciences.



A new classroom, created to accommodate the return of college level coursework to NJSJC, was outfitted with microscopes, a smart board, and other advanced teaching tools, donated by Middlesex County College and Professor Robert Colburn.